



1 PW

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : Eric R. Fossum et al. Art Unit: 2826
Serial No.: 10/712,844 Examiner: Fetsum Abraham
Filed : November 12, 2003 CONFIRMATION NO. : 9500
Title: A METHODE OF ACQUIRING AN IMAGE FROM AN OPTICAL STRUCTURE
HAVING PIXELS WITH DEDICATED READOUT CIRCUITS (AS AMENDED)

Attention: ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Notice of Allowance Date: May 5, 2005

RESPONSE TO EXAMINER'S AMENDMENT/REASONS FOR ALLOWANCE

Pursuant to 37 CFR 1.312, and in response to the Examiner's Amendment/Reasons for Allowance, Applicant has enclosed herewith the non-patent documents, designated as AO-AS; and ACC-ADDDD, respectively, on Forms PTO-1449 of the Information Disclosure Statements previously filed in the above matter (copies attached). Applicant respectfully requests that the Examiner consider the enclosed references.

CERTIFICATE OF MAILING BY FIRST CLASS MAIL

I hereby certify under 37 CFR §1.8(a) that this correspondence is being deposited with the United States Postal Service as first class mail with sufficient postage on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

July 8, 2005

Date of Deposit

Signature *Rita H. Jennings*

Rita H. Jennings

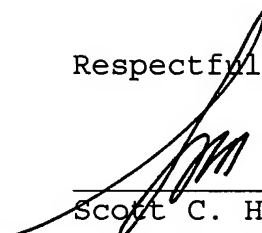
Typed or Printed Name of Person Signing Certificate

Please apply any charges or credits to Deposit Account

No. 06-1050.

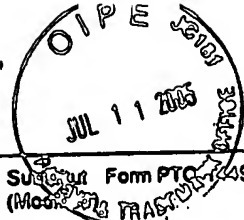
Respectfully submitted,

Date: July 8, 2005



Scott C. Harris
Reg. No. 32,030

Fish & Richardson P.C.
PTO Customer Number: 20985
12390 El Camino Real
San Diego, CA 92130-2081
Telephone: (858) 678-5070
Facsimile: (858) 678-5099
10530769.doc



| | | | |
|---|--|--|--------------------------------------|
| Substituted Form PTO-1449 (Modified by TRAIST) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Office No. 06816/017003 | Application No. 09/604,846 |
| Information Disclosure Statement by Applicant (Use as many sheets as necessary) | | Applicant Eric R. Fossum, et al. | |
| (37 CFR §1.98(b)) | | Filing Date June 27, 2000 | Group Art Unit 2811 |

| U.S. Patent Documents | | | | | | | |
|-----------------------|-----------|---------------|---------------|--------------------|-------|----------|----------------------------|
| Examiner Initial | Desig. ID | Patent Number | Issue Date | Patentee | Class | Subclass | Filing Date If Appropriate |
| <i>PA</i> | AA | 5,345,266 | Sep. 6, 1994 | Denyer | | | |
| | AB | 5,153,421 | Oct. 6, 1992 | Tandon et al. | | | |
| | AC | 5,631,704 | May 20, 1997 | Dickinson et al. | | | |
| | AD | 5,198,654 | Mar. 30, 1993 | Mukainakano et al. | | | |
| | AE | 5,452,109 | Sep. 19, 1995 | Compton | | | |
| | AF | 5,495,337 | Feb. 27, 1996 | Goshorn et al. | | | |
| <i>U</i> | AG | 5,585,620 | Dec. 17, 1996 | Nakamura et al. | | | |
| | AH | | | | | | |
| | AI | | | | | | |
| | AJ | | | | | | |
| | AK | | | | | | |
| | AL | | | | | | |

| Foreign Patent Documents or Published Foreign Patent Applications | | | | | | | | |
|---|-----------|-----------------|------------------|--------------------------|-------|----------|-------------|--|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation | |
| <i>R</i> | AM | 0 700 582 B1 | July 22, 1998 | EPO | | | X | |
| | AN | | | | | | | |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|---|
| Examiner Initial | Desig. ID | Document |
| | AO | Reashaw, D., et al., "ASIC Vision," Custom Integrated Circuits Conference, IEEE, pages 7.3.1-7.3.4 (May 1990) |
| | AP | Anderson, S., et al., "A Single Chip Sensor & Image Processor for Fingerprint Verification," Custom Integrated Circuits Conference, IEEE, pages 12.1.1-12.1.4 (1991) |
| | AQ | Wang, G., et al., "CMOS Video Camera," University of Edinburgh, IEEE, pages 100-132, (March 1991) |
| | AR | Denyer, P.B., et al., "CMOS Image Sensors for Multimedia Applications," Custom Integrated Circuits Conference, IEEE, pages 11.5.1-11.5.4 (March 1993) |
| | AS | Eric R. Fossum, "Active Pixel Sensors: Are CCD's Dinosaurs?," Proceedings of the SPIE, vol. 1990, Charge-Coupled Devices and Solid-State Optical Sensors III, pages 1-13 (1993) |
| | AT | |

| | |
|---|----------------------------------|
| Examiner Signature <i>Eric R. Fossum</i> | Date Considered 2/2/02 |
| EXAMINER: Initials shown considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. | |

BEST AVAILABLE COPY

| | | | |
|--|--|---------------------------------------|---------------------|
| Substitute Form PTO-1449 (Modified) Information Disclosure Statement by Applicant (Use several sheets if necessary) (37 CFR §1.98(b)) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Serial No. 06816/017003 | Application No. |
| | Applicant Eric R. Fossum, et al. | | |
| | Filing Date June 27, 2000 | Group Art Unit | |

| Foreign Patent Documents or Published Foreign Patent Applications | | | | | | | |
|---|-----------|-----------------|------------------|--------------------------|-------|----------|-----------------------|
| Examiner Initial | Desig. ID | Document Number | Publication Date | Country or Patent Office | Class | Subclass | Translation Yes No |
| | ABB | | | | | | |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|---|
| Examiner Initial | Desig. ID | Document |
| | ACC | S. Chamberlain, "Photosensitivity and Scanning of Silicon Image Detector Arrays," IEEE J. Solid State Circuits, Vol. SC-4, No. 6, pp. 333-342 (December 1969) |
| | ADD | M. Aoki, et al., "2/3 Inch Format MOS Single-Chip Color Imager," IEEE Trans. On Electron Devices, Vol. ED-29, No. 4, pp. 745-750 (April 1982) |
| | AEE | J. Hynes, et al., "A New Device Architecture Suitable for High-Resolution and High-Performance Image Sensors," IEEE Trans. on Electron Devices, Vol. 35(5), pp. 646-652 (May 1988) |
| | AFF | F. Andoh, et al., "A 250,000-Pixel Image Sensor with FET Amplification at Each Pixel for High-Speed Television Cameras," 1990 IEEE International Solid-State Circuits Conference, Digest of Technical Papers, pp. 212-213 (February 16, 1990) |
| | AGG | N. Tanaka, et al., "A 30K Pixel Bipolar Imager (BASIS)," IEEE Trans. On Electron Devices, Vol. 37(4), pp. 964-971 (April 1990) |
| | AHH | K. Chen, et al., "PASIC: A Processor-A/D Converter-Sensor Integrated Circuit," IEEE ISCAS, pp. 1705-1708 (1990) |
| | AIJ | O. Yadid-Pecht, et al., "A Random Access Photodiode Array for Intelligent Image Capture," IEEE Trans. on Electron Devices, Vol. 38, No. 8, pp. 1772-1780 (August 1991) |
| | AJJ | M. Kiyomizu, "A New MOS Imager Using Photodiode as Current Source," IEEE Journal of Solid State Circuits, Vol. 26, No. 8, pp. 1116-1122 (August 1991) |
| | AKK | R. Forchheimer, et al., "MAP2200 - A Second generation smart optical sensor," Proc. SPIE, Vol. 1659, pp. 2-11 (1992) |
| | ALL | C. Janssen, et al., "An Addressable 256 x 256 Photodiode Image Sensor Array with an 8-Bit Digital Output," Analog Integrated Circuits and Signal Processing, Vol. 4, pp. 37-49 (1993) |
| | AMM | H. Kawashima, et al., "A 1/2 Inch Format 250K Pixel Amplified MOS Image Sensor Using CMOS Process," IEEE IEDM Tech. Digest, pp. 22.4.1-22.4.4 (1993) |
| | ANN | S. Mendis, et al., "Design of a Low-Light-Level Image Sensor with On-chip Sigma-Delta Analog-to-Digital Conversion," SPIE, Charge Coupled Devices & Solid State Optical Sensors III, Vol. 1900, pp. 31-39 (1993) |
| | AOO | M. Sugawara, et al., "An Amplified MOS Imager Suited for Image Processing," 1994 IEEE International Solid-State Circuits Conference, Digest of Technical Papers, Session 13, Neural Networks and Image Sensors/ Paper TP 13.6, pp. 228-229 (1994) |
| | APP | B. Fowler, et al., "A CMOS Area Image Sensors with Pixel-Level A/D Conversion," 1994 IEEE International Solid-State Circuits Conference, Digest of Technical Papers, Neural Networks and Image Sensors/ Paper TP 13.5, pp. 226-227 (1994) |
| | AQQ | B. Pata, et al., "Approaches and analysis for on-focal-plane analog-to-digital conversion," Proc. SPIE, Vol. 2226, pp. 208-218 (1994) |
| | ARR | A. Gruss, et al., "Integrated Sensor and Range-Finding Analog Signal Processor," IEEE Journal of Solid State Circuits, Vol. 26, No. 3, pp. 184-191 (March 1991) |
| | ASS | Renshaw, et al., "ASIC Image Sensors," Proc. IEEE ISCAS, pp. 3038-3041 (1990) |

| | |
|--|-----------------|
| Examiner Signature | Date Considered |
| EXAMINER: Initials shown considered. Draw line through initial if not in consideration and not considered. Include copy of this form with next communication to applicant. | |

| | | | |
|---|--|--|----------------------|
| Substitute Form PTO-1449 (Modified) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Docket No. 06816/017C03 | Application No. - |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | Applicant Eric R. Fossum, et al. | |
| | | Filing Date June 27, 2000 | Group Art Unit |
| (37 CFR §1.98(b)) | | | |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|---|
| Examiner Initial | Desig. ID | Document |
| | ATT | O. Vellacott, "CMOS in camera," IEE Review, pp. 111-114 (May 1994) |
| | AUU | I. Muirhead, "Developments in CMOS Camera Technology," published by: IEE, Savoy Place, London WC2R 0BL, UK, pp. 3/1-3/4 (1994) |
| | AVV | I. Takayanagi, et al., "A Multiple Output CMD Imager for Real-Time Image Processing," IEEE, IEDM, pp. 22.3.1-22.3.4 (1993) |
| | AWW | M. White, et al., "Characterization of Surface Channel CCD Image Arrays at Low Light Levels," IEEE Journal of Solid-State Circuits, Vol. SC-9, No. 1, pp. 1-13 (February 1974) |
| | AXX | W. Yang, et al., "A full-fill factor CCD imager with integrated signal processors," IEEE International Solid-State Circuits Conference Digest of Technical Papers, pp. 218-219 and JUV (February 16, 1990) |
| | AYY | R. Forchheimer, "Single-chip image sensors with a digital processor array," Journal of VLSI Signal Processing, Vol. 3, pp. 121-131 (1993) |
| | AZZ | E. Fossum, et al., "Development of CMOS Active Pixel Image Sensors for Low Cost Commercial Applications," Conference Proceedings of NASA Technology 2004, pp. 1-2 (November 1994) |
| | AAAA | E. Fossum, et al., "Application of the active pixel sensor concept to guidance and navigation," SPIE, Vol. 1949, Space Guidance, Control and Tracking, paper 30, pp. 1-8 (1993) |
| | ABBB | E. Fossum, "Assessment of Image Sensor Technology for Future NASA Missions," Proceedings of the SPIE, Vol. 2172, Charge-Coupled Devices and Solid-State Optical Sensors IV, pp. 1-16 (1994) |
| | ACCC | T. Kuriyama, et al., "A 1/3-in 270 000 Pixel CCD Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 949-953 (May 1991) |
| | ADDD | J. Hojo, et al., "A 1/3-in 910(H) x 492(V) CCD Image Sensor with Mirror Image Function," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 954-959 (May 1991) |
| | AEEE | H. Ando, et al., "A 1/2-in CCD Imager with Lateral Overflow-Gate Shutter," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 960-964 (May 1991) |
| | AFFF | A. Toyota, et al., "A Novel Tungsten Light-Shield Structure for High-Density CCD Image Sensors," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 965-968 (May 1991) |
| | AGGG | T. Ozeki, et al., "A Low-Noise Line-Amplified MOS Imaging Devices," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 969-975 (May 1991) |
| | AHHH | M. Yamagishi, et al., "A 2 Million Pixel FIT-CCD Image Sensor for HDTV Camera Systems," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 976-980 (May 1991) |
| | AIH | E. Stevens, et al., "A 1-Megapixel, Progressive-Scan Image Sensor with Antiblooming Control and Lag-Free Operation," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 981-988 (May 1991) |
| | AJJ | K. Matsumoto, et al., "The Operation Mechanism of a Charge Modulation Device (CMD) Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 989-998 (May 1991) |

| | |
|---|-----------------|
| Examiner Signature | Date Considered |
| EXAMINER: Indicate citation considered. Draw line through citation if not in conference and not considered. Include copy of this form with next communication to applicant. | |

| | | | |
|---|--|--|----------------|
| Substitute Form PTO-1449 (Modified) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Docket No. 06816/017003 | Applicant No. |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | Applicant Eric R. Fossum, et al. | |
| (37 CFR §1.99(b)) | | Filing Date June 27, 2000 | Group Art Unit |

Other Documents (include Author, Title, Date, and Place of Publication)

| Examiner Initial | Desig. ID | Document |
|------------------|-----------|--|
| | AKKK | K. Matsumoto, et al., "Analysis of Operational Speed and Scaling Down the Pixel Size of a Charge Modulation Device (CMD) Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 999-1004 (May 1991) |
| | ALLL | M. Ogas, "A Small Pixel CMD Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1093-1010 (May 1991) |
| | AMMM | Hynecet, "BCMD - An Improved Photonic Structure for High-Density Image Sensors," IEEE Transactions on Electron Devices, Vol. 38(5), pp. 1011-1020 (May 1991) |
| | ANNN | T. Mizoguchi, et al., "A 250 k-Pixel SIT Image Sensor Operating in its High-Sensitivity Mode," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1021-1027 (May 1991) |
| | AOOO | Y. Nakamura, et al., "Design of Bipolar Imaging Device (BASIS)," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1028-1036 (May 1991) |
| | APPP | M. Miyazaki, et al., "Reduction of Fixed-Pattern Noise of BASIS Due to Low Kinetic Energy Reactive Ion to Low Kinetic Energy Reactive Ion and Native-Oxide-Free Processing," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1037-1043 (May 1991) |
| | AQQQ | Y. Masunaga, et al., "A High-Sensitivity MOS Photo-Transistor for Area Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1044-1047 (May 1991) |
| | ARRR | N. Mutch, et al., "New Low-Noise Output Amplifier for High-Definition CCD Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1048-1055 (May 1991) |
| | ASSS | M. Tabai, et al., "A New CCD Architecture of High-Resolution and Sensitivity for Color Digital Still Picture," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1052-1058 (May 1991) |
| | ATTT | J. Bosters, et al., "A 2/3-in 1187(H) x 500(V) S-VHS-Compatible Frame-Transfer CCD for ESP and Movie Mode," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1059-1068 (May 1991) |
| | AUUU | B. Burke, "An Abusable CCD Imager for Visible and X-Ray Focal Plane Arrays," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1069-1076 (May 1991) |
| | AVVV | E. Gercik, "CCD Arrays for Readout of Electrophotographic Latent Images," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1077-1083 (May 1991) |
| | AWWW | T. Kameko, et al., "400 dpi Integrated Contact Type Linear Image Sensors with Poly-Si TFT's Analog Readout Circuits and Dynamic Shift Registers," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1086-1093 (May 1991) |
| | AXXX | C. K. Chen, et al., "Ultraviolet, Visible, and Infrared Response of P-Si Schottky-Barrier Detectors Operated in the Front-Illuminated Mode," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1094-1103 (May 1991) |
| | AYYY | R. B. Bailey, et al., "256 x 256 Hybrid HgCdTe Infrared Focal Plane Arrays," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors," Vol. 38, No. 5, pp. 1104-1109 (May 1991) |

| | |
|---|-----------------|
| Examiner Signature | Date Considered |
| EXAMINER: Initials citation considered. Draw End through citation if not in conference and not considered. Include copy of this form with non communication to applicant. | |

| | | | |
|---|--|--|-----------------|
| Substitute Form PTO-1449 (Revised) | U.S. Department of Commerce Patent and Trademark Office | Attorney/Agent Name 06816/017003 | Application No. |
| Information Disclosure Statement by Applicant (Use several sheets if necessary) | | Applicant Eric R. Fossum, et al. | |
| (37 CFR §1.98(b)) | | Filing Date June 27, 2000 | Group Art Unit |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|--|-----------|--|
| Examiner Initial | Desig. ID | Document |
| | AZZZ | H. Zogg, et al., "Infrared Sensor Arrays with 3-12 μm Cutoff Wavelengths in Heteroepitaxial Narrow-Gap Semiconductor on Silicon Substrates," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1110-1117 (May 1991) |
| | AAAAA | C. G. Bethea, et al., "10- μm GaAs / AlGaAs Multiquantum Well Scanned Array Infrared Imaging Camera," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1118-1123 (May 1991) |
| | ABBBB | L. J. Kozlowski, et al., "LWIR 128 x 128 GaAs / AlGaAs Multiple Quantum Well Hybrid Focal Plane Array," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1124-1130 (May 1991) |
| | ACCCC | M. Datta, et al., "4-Band x 4096-Element Schottky-Barrier Infrared Linear Image Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1131-1135 (May 1991) |
| | ADDDD | S. Tohyama, et al., "A New Concept Silicon Homojunction Infrared Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1136-1140 (May 1991) |
| | AEEEE | T-L Lin, et al., "SiGe / Si Heterojunction Internal Photoemission Long-Wavelength Infrared Detectors Fabricated by Molecular Beam Epitaxy," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1141-1144 (May 1991) |
| | AFFFF | M. Ohtsuka, et al., "Room-Temperature-Operated Infrared Image CCD Sensor Using Pyroelectric Gate Coupled by Dielectric Capacitor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1145-1151 (May 1991) |
| | AGGGG | J.G.C. Bakker, "Simple Analytical Expressions for the Fringing Field and Fringing-Field-Induced Transfer Time in Charge-Coupled Devices," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1152-1161 (May 1991) |
| | AHHHH | E. K. Banghart, et al., "A Model for Charge Transfer in Buried-Channel Charge-Couple Devices at Low Temperature," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1162-1174 (May 1991) |
| | AIHHH | C. R. Hoople, et al., "Characteristics of Submicrometer Gaps in Buried-Channel CCD Structures," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1175-1180 (May 1991) |
| | AJJJJ | E.R. Fossum, et al., "Two-Dimensional Electron Gas Charge-Coupled Devices (2DEG-CCD's)," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1182-1192 (May 1991) |
| | AKKKK | J.G.C. Bakker, et al., "The Tackling CCD: A New CCD Concept," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1193-1200 (May 1991) |
| | ALLLL | S. Tsubiyama, et al., "A Dynamic Model of an n-Si:H Photoconductive Sensor," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1201-1205 (May 1991) |
| | AMMMM | P. Centen, "CCD On-Chip Amplifiers: Noise Performance versus MOS Transistor Dimensions," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1206-1216 (May 1991) |
| | ANNNN | N. Ozawa, et al., "A Correlative Coefficient Multiplying (CCM) Method for Chrominance Moire Reduction in Single-Chip Color Video Cameras," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1217-1223 (May 1991) |
| Examiner Signature | | Date Considered |
| EXAMINER: Indicate citation considered. Draw line through citation if not in consideration and not considered. Include copy of this form with next communication to applicant. | | |

| | | | |
|---|--|--|-----------------|
| Substitute Form PTO-1449 (Modified) | U.S. Department of Commerce Patent and Trademark Office | Attorney's Docket No. 06816/017003 | Application No. |
| Information Disclosure Statement by Applicant (to be covered sheets if necessary) | | Applicant Eric R. Fossum, et al. | |
| (37 CFR §1.92(b)) | | Filing Date June 27, 2000. | Group Art Unit |

| Other Documents (include Author, Title, Date, and Place of Publication) | | |
|---|-----------|--|
| Examiner Initial | Desig. ID | Document |
| | A0000 | Y.T. Tsai, "Color Image Compression for Single-Chip Cameras," IEEE Transaction on Electron Devices, Special Issue on Solid State Image Sensors, Vol. 38, No. 5, pp. 1226-1232 (May 1991) |
| | ARPPP | P. Noble, "Self-Scanned Silicon Image Detector Arrays," IEEE Trans. on Electron Devices, Vol. ED-15, No. 4, pp. 202-209 (April 1968) |
| | AQQQQ | J. Nishizawa, et al., "Static Induction Transistor Image Sensors," IEEE Trans. on Electron Devices, Vol. ED-26 (12), pp. 1970-1977 (December 1979) |
| | ARRRR | K. Matsumoto, et al., "A New MOS Phototransistor Operating in a Non-Destructive Readout Mode," Jpn. J. Appl. Phys., Vol. 24, No. 5, pp. L323-L325 (1985) |
| | ASSSS | H. Ando, et al., "Design Consideration and Performance of a New MOS Imaging Device," IEEE Trans. on Electron Devices, Vol. ED-32, No. 8, pp. 1484-1489 (August 1985) |
| | ATTTT | T. Nakamura, et al., "A New MOS Image Sensor Operating in a Non-Destructive Readout Mode," IEDM Tech. Dig., pp. 353-356 (1986) |
| | AUUUU | A. Yusa, et al., "SIT Image Sensor: Design Considerations and Characteristics," IEEE Trans. on Electron Devices, Vol. ED-33, No. 6, pp. 735-742 (June 1986) |
| | AVVVV | N. Tanaka, et al., "A Novel Bipolar Imaging Device with Self-Noise-Reduction Capability," IEEE Trans. on Electron Devices, Vol. 36(1), pp. 31-38 (January 1989) |
| | AWWWW | Z. Huang, et al., "A Novel Amplified Image Sensor with a Si:H Photoconductor and MOS Transistor," IEEE Trans. on Electron Devices, Vol. 37, No. 6, pp. 1432-1438 (June 1990) |
| | AXXXX | Y. Nakamura, et al., "Design of Bipolar Imaging Devices (BASIS): Analysis of Random Noise," IEEE Trans. on Electron Devices, Vol. 39(6), pp. 1341-1349 (June 1992) |
| | AYYYY | E. Fossum, "Active-pixel sensors challenge CCDs," Laser Focus World, Vol. 29, pp. 83-87 (June 1993) |
| | AZZZZ | S. Mendis, et al., "A 128 x 128 CMOS Active Pixel Image Sensor for Highly Integrated Imaging Systems," Proc. of the 1993 IEEE International Electron Devices Meeting, pp. 583-586 (1993) |
| | AAAAA | S. Mendis, et al., "Progress in CMOS Active Pixel Image Sensors," Proc. SPIE, Vol. 2172, pp. 19-29 (1994) |
| | ABBBB | S. Mendis, et al., "CMOS Active Pixel Image Sensor," IEEE Trans. on Electron Devices, Vol. 41, No. 3, pp. 452-453 (March 1994) |
| | ACCCC | T. Kinugasa, et al., "An Electronic Variable-Shutter System in Video Camera Use," IEEE Transactions on Consumer Electronics, Vol. CE-33, No. 3, pp. 249-255 (1987) |
| | ADDDD | S. Mendis, et al., "CMOS Active Pixel Image Sensor," Citation Unknown, pp. 1-7 (July 1993) |

| | |
|---|-----------------|
| Examiner Signature | Date Considered |
| EXAMINER: Initials of person considered. Draw line through citation if not in consideration and not considered. Include copy of this form with information communicated to applicant. | |